

Claims:

- 1 1. A non-porous graft adapted to be secured to a stent
- 2 surrounding said graft, said graft comprising:
 - 3 an inner layer of a non-porous material;
 - 4 an outer layer of material laminated to said inner layer; and
 - 5 a fastening element adapted to be secured to said stent, wherein said
 - 6 fastening element is fixed between said inner layer and said outer layer.
- 1 2. The graft as recited in claim 1 comprising a plurality of said
- 2 fastening elements distributed lengthwise and/or circumferentially on said graft.
- 1 3. The graft as recited in claim 1, wherein said graft is attached to
- 2 an inside surface of the stent with said fastening elements projecting through the
- 3 stent and a linear locking element through said fastening elements, wherein said
- 4 linear locking element is secured to the stent at at least two points along a length of
- 5 the stent.
- 1 4. The graft as recited in claim 1, wherein said fastening elements
- 2 comprise D-shaped rings.
- 1 5. The graft as recited in claim 1, wherein the material of said
- 2 inner layer is expanded polytetrafluoroethylene.

1 6. The graft as recited in claim 1, wherein the material of said
2 outer layer is polyester.

1 7. The graft as recited in claim 1, wherein the material of said
2 outer layer is knitted, woven, or braided.

1 8. The graft as recited in claim 1, wherein the material of said
2 fastening elements is a radiographically differentiable material.

1 9. The graft as recited in claim 1, wherein the material of said
2 linear locking elements is a radiographically differentiable material.

1 10. A non-porous tubular graft adapted to be secured to a stent
2 surrounding said graft, said graft comprising:

3 an inner layer of a non-porous material; and

4 an outer layer of knitted, woven, or braided material laminated to said
5 inner layer, wherein said outer layer includes a plurality of fastening elements
6 extending outwardly from said outer layer along a length of said outer layer of said
7 tubular graft, at least some of said fastening elements adapted to be secured to a
8 stent surrounding said graft.

1 11. The graft as recited in claim 10, wherein said fastening
2 elements comprise D-shaped rings.

1 12. The graft as recited in claim 10, wherein the material of said
2 inner layer is expanded polytetrafluoroethylene.

1 13. The graft as recited in claim 10, wherein the material of said
2 outer layer is polyester.

1 14. The graft as recited in claim 10, wherein the material of said
2 outer layer is knitted, woven, or braided.

1 15. A stent-graft for defining a fluid passageway in a body lumen,
2 said stent-graft comprising:

3 a stent; and

4 a graft, said graft comprising;

5 an inner layer of a non-porous material;

6 an outer layer of knitted, woven, or braided material laminated
7 to said inner layer; and

8 a plurality of fastening elements, wherein at least a part of each
9 fastening element is fixed between said inner layer and said outer layers

10 said stent surrounding said graft and secured thereto through said
11 fastening elements.

1 16. The stent-graft as recited in claim 15, wherein said graft is
2 attached to said stent with said fastening elements projecting through said stent and
3 a plurality of looped locking elements securing said fastening elements to said stent.

1 17. The graft as recited in claim 15, wherein said graft is attached
2 to said stent with said fastening elements projecting through said stent and a linear
3 locking element through said fastening elements, wherein said linear locking element
4 is secured to said stent at at least two points thereof.

1 18. The stent-graft as recited in claim 15, wherein said fastening
2 elements comprise D-shaped rings.

1 19. The stent-graft as recited in claim 16, wherein the material of
2 said looped locking elements is a radiographically differentiable material

1 20. A stent-graft for defining a fluid passageway in a body lumen,
2 said stent-graft comprising:

3 a stent; and

4 a graft, said graft comprising;

5 an inner layer of a non-porous material; and

6 an outer layer of knitted, woven, or braided material laminated
7 to said inner layer, wherein said outer layer includes a plurality of fastening
8 elements extending outwardly from said outer layer along a length of said
9 outer layer of said graft, at least some of said fastening elements adapted to
10 be secured on an outer surface of the stent surrounding said graft, at least a
11 part of each said fastening element being disposed between said inner layer
12 and said outer layer.

1 21. The stent-graft as recited in claim 20, wherein said graft is
2 attached to said stent with said fastening elements projecting through said stent and
3 a plurality of looped locking elements secured to said stent by knotted loops of
4 suture material.

1 22. The stent-graft as recited in claim 20, wherein said graft is
2 attached to said stent with said fastening elements projecting through said stent and
3 a linear locking element through said fastening elements, wherein said linear locking
4 element is secured to said stent at at least two points along a length of said stent.

1 23. A method of making a non-porous tubular graft comprising the
2 steps of:

3 securing a plurality of fastening elements extending through an outer
4 layer of knitted, woven, or braided material along a length of the outer layer,
5 wherein the fastening elements extend outwardly from the outer layer;

6 placing an inner layer of non-porous material within the outer layer
7 such that an underside of each fastening element is positioned between the inner
8 layer and the outer layer; and

9 laminating the outer layer to the inner layer to form the non-porous
10 tubular graft.